

REMARKS/ARGUMENTS

Claims 41-51, 57-69 and 72 are active in this application. Claims 1-40 and 73-83 were previously canceled and Claims 52-56 and 70-71 were previously withdrawn.

Applicants note and appreciate that the prior claim objections and rejections under 35 U.S.C. § 112 have been withdrawn. Applicants request that the Examiner clarify the status of independent Claim 72 since it is not addressed at all in the latest Office Action but is currently active and pending.

RESPONSE TO REJECTION UNDER 35 U.S.C. § 103

I. Obviousness Rejection over Tawada and Cheung

Claims 41-51, 57, 58, and 61-63 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,433,097 to Tawada *et. al.* in view of U.S. Patent No. 5,739,200 to Cheung *et al.* It appears that a review of the teachings of these references would be beneficial.

A. Tawada Teaches Substantial Amounts of Talc Surrounded Completely by Vinyl Chloride Resin to Increase the Impact Strength

Tawada is directed to a composition of vinyl chloride resin “wherein impact strength and fabricability are substantially improved.” (col. 1, lines 10-11). The impact strength results from “**having the entire talc particle embedded within the polymer particles** with more than one surface of the talc bonded directly to the polymer particles.” (col. 2, lines 66-68). That is, “**the talc particles are substantially embedded in and surrounded by the resulting polymer particles.**” The way that Tawada completely surrounds the talc is by first wetting the talc particles with vinyl chloride monomer in an aqueous medium and then polymerizing the monomer. (col. 3, lines 14-21). “The talc content in the composition of the invention is desired to be not more than about 50 weight percent based on the amount of talc in the polymer particles” (col. 7, lines 38-40) and for molding the talc content is from one to 30 weight percent. (col. 8, lines 11-14). Example 6 compares various levels of talc beginning at about 5 weight percent and concludes that “the talc contents of articles are desired to be kept under about 40% by weight.” (col. 15, lines 47-50).

B. Cheung Teaches Interpolymer Compositions with 5-30 Weight Percent Plasticizer

Cheung is directed to compositions comprising an interpolymer and a plasticizer. The interpolymers are of alpha-olefin/vinylidene aromatic and/or hindered aliphatic and/or cycloaliphatic vinylidene monomer. The plasticizers are those such as phosphoric acid derivatives, phthalic acid derivatives, trimellitate esters, benzoates, adipate esters, epoxy compounds, phosphate esters, glutarates and mineral oils. (col. 1, lines 8-12 and 55-58). **The plasticizer is most preferably included in an amount of from about 10-40 weight percent (col. 8, line 65).**

C. The Combination of Tawada and Cheung Does Not Yield the Claimed Inventions Because They are Missing at Least Three Claim Elements

The Office Action states that “All elements of the present invention are found in the two cited references.” (Office Action, p.4). However, a review of the references shows that there are at least three elements of independent Claim 41 that are completely missing from the suggested combination of references. Three missing claim elements include (1) an anti-blocking agent, (2) in an effective amount, (3) that is mechanically adhered to polymer particles.

1. Neither Tawada nor Cheung Teach or Suggest (1) an Anti-Blocking Agent or (2) an Effective Amount

Independent Claim 41 requires an effective amount of anti-blocking agent. Tawada discloses talc. However, Tawada completely encapsulates the talc within the polyvinyl chloride polymer to increase impact resistance. Since the talc is completely encapsulated within the polymer particle Tawada’s talc cannot function as an anti-blocking agent, e.g., an agent that inhibits polymer particle caking, agglomerating, aggregating and/or sticking. Since the talc cannot function as an anti-blocking agent then it cannot, by definition, be in an effective amount. Thus, Tawada does not disclose (1) an antiblocking agent or (2) an effective amount.

Cheung does not remedy Tawada’s deficiencies in that Cheung simply adds 10-40 weight percent plasticizers to ethylene interpolymers. There is no basis in Cheung to suggest that these plasticizers will somehow function as anti-blocking agents or that the plasticizers are present in an effective amount for anti-blocking.

2. Neither Tawada nor Cheung Teach or Suggest a Mechanically Adhered Anti-Blocking Agent

“Mechanically adhered” is defined in the instant patent application as “physically bound via adhesive means such as a particle embedded into the surface of another particle.” (p. 4, lines 29-31). By mechanically adhering an effective amount of an anti-blocking agent to one or more polymer particles, the anti-blocking agent will at least partially coat the one or more polymer particles so as to prevent large numbers of polymer particles that do not have an effective amount of anti-blocking agent from agglomerating or caking.

In contrast to the Applicants’ inventions, Tawada completely encapsulates talc within the polymer so that the talc cannot possibly function as an anti-blocking agent since the talc is not even exposed to any other polymer particles. Cheung, like Tawada, does not use an anti-blocking agent much more a mechanically adhered one. The combination suggested in the Office Action is missing at least three elements of Applicants inventions. Therefore, the instant inventions are non-obvious over the suggested combination.

D. There is No Motivation to Combine Tawada and Cheung

In addition to not obtaining the instantly claimed inventions when combined, a person skilled in the art would not even be motivated to combine Tawada and Cheung as suggested in the Office Action. Tawada is concerned with increasing the impact resistance of polyvinyl chloride by adding substantial amounts of talc to an aqueous solution of vinyl chloride monomer and then polymerizing it to form talc that is wholly encapsulated within the polyvinyl chloride composition. Specifically, Tawada states:

In the composition of the invention, since the talc and the polymer remain in direct contact with each other, such compounds, if added after the polymerization, will not readily permeate to the interface of talc. This trend becomes conspicuous in proportion as the particle diameter of the polymer increases. It is thus necessary that such compound should be added before the polymerization is ready to start. (Tawada col. 9, lines 3-10).

In direct contrast to Tawada, Cheung adds plasticizer to an already polymerized composition.

Tawada and Cheung may include polymer particles that could benefit by the instant invention, i.e., the polymers may have a one millimeter penetration temperature of less than

about 75 °C as determined by thermal mechanical analysis or an unconfined yield strength of greater than about 15 pounds per square foot (73 kilograms per square meter) or both. However, neither reference is concerned with blocking or even recognizes that blocking could be problematic for polymer particles having the instantly recited thermal mechanical analysis or unconfined yield strength.

If this rejection is maintained the Examiner is respectfully asked to explain the following:

1. Given Tawada's statement that it is "necessary" that components like talc be added to the vinyl chloride monomers before polymerization, why would the skilled artisan ignore Tawada's teachings and consider employing Cheung's addition of plasticizer to an already polymerized interpolymer?
2. What basis is there in either reference for the skilled artisan to expect that the addition of components like talc to ethylene monomers before polymerization will not somehow interfere with the subsequent polymerization? On the other hand, what basis is there in either reference for the skilled artisan to add talc to ethylene polymers and expect any sort of anti-clocking benefit?
3. Given that neither reference is concerned with blocking or with any agents mechanically adhered, why would one be motivated to combine and supplement the teachings in a manner that could somehow result in a composition with an "effective amount of anti-blocking agent mechanically adhered to the polymer particles" as required by independent Claim 41?

E. Conclusion

The Examiner is respectfully asked to reconsider and withdraw the instant rejection over Tawada and Cheung since the combination is missing at least three elements of the claimed inventions and since there is no motivation to combine the references.

II. Obviousness Rejection over Himes

Claims 41-51, 57, 58, and 61-63 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,060,510 to Himes et. al. Applicants respectfully request that the rejection be withdrawn.

A. Himes' Process Seeks to Prevent Adhesion Between Block Copolymer, Thermoplastic Polymer, and the Optional Filler

Himes teaches a process for making a rubber composition containing a block copolymer, a thermoplastic polymer, plasticizer and optional fillers.. (col. 2, lines 37-40). The filler varies from 0-150 phr. (col. 5, line 10). The process for making the rubber composition requires first dry blending or dry mixing the ingredients other than the plasticizer for 0 to 60 seconds in which time friction can increase the temperature to between 100° and 150° F. (col. 5, lines 17-20). Next, the plasticizer oil is added. As Himes specifies, "The temperatures of dry blending is particularly critical." (col. 2, lines 42-43). This criticality is because at higher temperatures, "the particles begin to coalesce." (col. 2, lines 47-48). Thus, the process of Himes "prevents bridging" between the block copolymer, thermoplastic polymer, and optional fillers (col. 2, lines 50-52) so that these particles remain separate and "do not coalesce due to heat-induced surface tack." (col. 5, lines 56-57).

B. Applicants' Inventions Have an Anti-Blocking Agent Mechanically Adhered to Polymer Particles and are Patentable Over Himes

Applicants claimed inventions are in direct contrast and are the antithesis of what Himes discloses. Instead of seeking to "prevent bridging" and keep polymer particles separate from other ingredients, Applicants' claimed inventions have an effective amount of anti-blocking agent mechanically adhered to the polymer particles. One way Applicants can accomplish this is by using the surface tack of polymer particles to mechanically adhere an effective amount of anti-blocking agent.

Himes does not teach, disclose, or suggest having an effective amount of anti-blocking agent mechanically adhered to polymer particles. Likewise, Himes does not teach, disclose, or suggest (1) what could be used as an anti-blocking agent, (2) what an effective amount of anti-blocking agent would be, or (3) how one would mechanically adhere an effective amount of anti-blocking agent to polymer particles. Given that Himes wishes to prevent mechanical adhesion between the various ingredients, the skilled artisan would not be motivated to somehow modify Himes in a manner to obtain Applicants' inventions. Therefore, Himes does not and cannot

render the instant claims *prima facie* obvious and Claims 41, 57-62, 64-69 and 72 are patentable over Himes.

III. Obviousness Rejection Over Park et al.

Claims 41-51, 57-62, and 64-69 stand rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/10015 to Park *et. al.*

In making the rejection over Park, the previous Office Action stated:

Park et al. discloses a mixture of granulated ethylene-styrene copolymer and 0.02 phr of talc (page 27, lines 29 and 31). This mixture is preblended, then fed into an extruder where it passes through a feeding zone at 160 °C and a transition zone at 177 °C, prior to the melting zone (page 27, line 36). In view of the fact that this mixing process is essentially the same as that disclosed in the present application (page 20, lines 12-28), a reasonable basis exists to believe that the process described in Park et al. causes sufficient softening of the polymer particle, resulting in the formation of polymer particles containing talc particles mechanically adhered thereto. *Office Action of June 20, 2003, page 10.*

Applicants' attorney has reviewed page 27 of Park referred to by the Examiner and there was no reference to talc. Example 7 (beginning on page 26 and continuing on page 27) discloses a 50:50 blend of Interpolymer A and olefin polymer D. Interpolymer A contained <2.5% talc as described in Table 1A on page 20. However, the preparation of Interpolymer A on pages 19-20 does not disclose the details of how talc becomes part of Interpolymer A and therefore the talc could have been added pre-polymerization or could simply be in dry admixture with Interpolymer A. In any event, there is no evidence on page 27 to suggest that the talc is mechanically adhered to Interpolymer A.

Furthermore, Applicants respectfully disagree and do not understand the statement in the Office Action that some extrusion process of Park is "essentially the same as that disclosed in the present application. (page 20, lines 12-28)." Extrusion processes force polymer(s) through a die via a screw and thus do not result in an effective amount of anti-blocking agent mechanically adhered to polymer particles. What's more, there is no motivation provided in Park to somehow modify an extrusion process to obtain Applicants' claimed inventions. If this rejection is maintained Applicants respectfully ask the following, How would one skilled in the art be motivated to modify an extrusion process and equipment of Park to obtain polymer particles having an effective amount of anti-blocking agent mechanically adhered thereto?

In conclusion, Park et al. does not teach or suggest an effective amount of antiblocking agent mechanically adhered to the polymer particles as in Applicants claimed inventions. Nor does Park suggest any modification to obtain such. Applicants request that the rejection over Park be withdrawn.

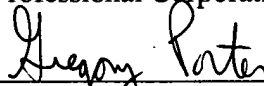
CONCLUSION

Applicants request that the Examiner withdraw the rejections in light of the arguments above. Applicants believe that the claims are in condition for allowance and respectfully request that the Examiner grant such an action. If any questions or issues remain in the resolution of which the Examiner feels will be advanced by a conference with the Applicants' attorney, the Examiner is invited to contact Gregory Porter at 713-951-3318.

No fees are believed to be currently due. If there are any fees due, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment of fees, to Deposit Account No. 10-0447, reference 43225-44598AUSP(BAI).

Respectfully submitted,

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